IN THE CLAIMS:

Cancel claims 1-15.

16. (Previously canceled)

Cancel claims 17 and 18.

19. (Previously Amended) A computer-readable medium having stored thereon an intermediate representation instruction data structure representing a platform-neutral instruction translated from a platform-dependent instruction in a heterogeneous program, the intermediate representation instruction accessible by a computer for manipulation and transformation to a platform-specific instruction executable by the computer, the data structure comprising:

an opcode field containing data representing an opcode for the intermediate representation instruction;

a destination operand field containing data representing a destination operand for the opcode identified by the opcode field;

a first source operand field containing data representing a first source operand for the opcode identified by the opcode field;

a second source operand field containing data representing a second source operand for the opcode identified by the opcode field;

a size field containing data representing a length for the instruction identified by a combination of the opcode field, the destination operand field, the first source operand field and the second source operand field; [and]

a mode field containing data representing an addressing mode for the instruction identified by the combination.

20. (Original) The computer-readable medium of claim 19, further comprising:

a shared field containing data representing a flag that indicates the instruction identified by the combination occurs multiple times in a binary.

21. (Original) The computer-readable medium of claim 19, further comprising:

an inserted field containing data representing a flag that indicates the instruction identified by the combination was inserted into a binary as a result of user action.

22. (Previously Amended) The computer-readable medium of claim 19, further comprising:

a destination operand type field containing data representing a type for the destination operand identified by the destination operand field;

a first source operand type field containing data representing a type for the first source operand identified by the first source operand field; and

a second source operand type field containing data representing a type for the second source operand identified by the second sourced operand field.

23. (Original) The computer-readable medium of claim 19, further comprising:

a signature field containing data representing a particular architecture when the instruction identified by the combination is a complex instruction.

24. (Original) The computer-readable medium of claim 23, further comprising:

at least one architecture specific field containing data representing additional information contained in the complex instruction identified by the combination.

25. (Previously Amended) A computer-readable medium having stored thereon a hierarchical data structure for an intermediate representation of a heterogeneous program, intermediate representation instructions of the heterogeneous program representing a platform-neutral instruction translated from a platform-dependent instruction in the heterogeneous program, the intermediate representation instruction accessible by a computer for manipulation and transformation to a platform-specific instruction executable by the computer, the hierarchical data structure comprising:

a component data structure for a component in the heterogeneous program, the component data structure comprising a procedure field containing data representing a pointer to a procedure data structure for a procedure in the component;

the procedure data structure comprising a first block field containing data representing a pointer to a code block data structure for a code block in the procedure identified by the procedure field; and

an instruction data structure comprising an instruction field containing data representing a pointer to a instruction data structure for an instruction in the code block identified by the first block field.

26. (Previously Canceled)

27. (Original) The computer-readable medium of claim 25, wherein the procedure data structure further comprises a symbol field containing data representing symbol table information for the procedure identified by the procedure field.

28. (Original) The computer-readable medium of claim 25, wherein the code block data structure comprises a header field in each of a plurality of intermediate representation code blocks, the header field containing structure information for the block identified by the first block field.

29. (Original) The computer-readable medium of claim 28, wherein the structure information comprises:

a size;

an address; and

a set of information flags.

30. (Original) The computer-readable medium of claim 25, further comprising:

a program data structure for the heterogeneous program, the program data structure comprising a component field containing data representing the component.

Cancel claims 31-43.